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ABSTRACT

An external evaluation reporting on the Title III, Elementary and Secondary Act, Open Concept School Program for Indian Education, focuses on cognitive and psychomotor development of experimental students, perceptions of the program (staff members, parents, and non-experimental teachers), and program accomplishment of other objectives, primarily process and procedural aims. Comparative data gathered over a 1 year period are presented in tabular form with accompanying narrative. Data are derived from teacher and on-site observations, parent and staff questionnaires, staff interviews, a junior high school followup study, standardized academic achievement tests, affective domain results, and a diffusion study. In terms of program objectives, data reveals that: the staff has developed alternate staffing patterns and flexible student management practices, introduced early childhood education for preschoolers, provided individualized laboratory instruction, established learning centers in major subject areas, and increased parental understanding of educational objectives. Students have not improved their knowledge, comprehension, and application in language arts by an 0.75 grade level equivalent, but have accomplished these goals in mathematics. Generally the open concept program has been successful in meeting its objectives; its major weakness involves the language arts and reading components, and staff communication. (JC)

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EXTERNAL EVALUATION REPORT

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OPEN-CONCEPT SCHOOL FOR INDIAN EDUCATION

SAULT STE. MARIE, MICHIGAN

TITLE III, ESEA

1973 - 74

Submitted by
Dr. Henry J. Prince
August 19, 1974

RC003828

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PREFACE

This evaluation report focuses on three areas: (1) cognitive and psychomotor development of experimental students; (2) perceptions of the program by staff members, parents, and non-experimental teachers in the local and regional area; and (3) program accomplishment of other objectives, primarily process and procedural aims.

The achievement data has been reported by grade level for the experimental students, even though grades, as such, are not part of the school's structure. This method was employed so that comparisons with control school pupils could more easily be made, and so that grade-level equivalent gain could be identified.

The evaluator is deeply indebted to Dr. Donald Hastings, who performed the statistical analysis and who contributed many suggestions for evaluation procedures and data interpretation.

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Observation of Program Teachers

In November 1973, two trained observers visited each classroom and learning center in the experimental and control schools. All teachers were observed for a minimum of one hour by each observer.

An observation rating scale adapted from an instrument developed by Walberg and Thomas was employed.[1] Their scale was reduced in size from fifty items to twenty for manageability. Observers indicated the frequency of occurrence of events in the classroom to support each statement of the rating form (1 = never, 5 = always).

In order to determine whether the experimental school differed significantly in operation from the control school, means and variances were compiled on each item. Prior to use of the t-test, non-homogeneity of variance was checked and some items were excluded on that basis. Results are indicated in Table 1.

TABLE 1

Ratings of classrooms: experimental, control

n = 16, 18
df = 32

Statement	Experimental Mean	Control Mean	t
Each child has the same text and materials.	1.19	3.78	-6.78*
Many different things go on simultaneously.	4.94	2.44	+6.38*
Children do their own work without help from other children.	1.94	4.11	-7.51*
Children, with their teacher's help, determine their own routine during blocks of class time.	4.75	1.67	+7.93*
Children work individually and in small groups at various activities.	4.88	2.38	+7.47*

[1]See Walberg and Thomas, Characteristics of Open Education

*Statistically significant at the .001 level.

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TABLE 1 (cont.)

Statement	Experimental Mean	Control Mean	t
Children are not supposed to move about the room without asking permission.	1.00	2.89	-5.35
Teacher uses much time in individualized observing and questioning.	4.75	2.11	+7.83*
The teacher prefers that children not talk when they are supposed to be working.	1.06	3.67	-6.70*
Children voluntarily group and regroup themselves.	4.69	1.72	+8 76*
The teacher plans and schedules the children's activities through the entire day.	1.38	4.22	-8.18*
The teacher groups children for lessons directed at specific needs.	3.31	2.11	+2.41
Children expect the teacher to correct all their work.	2.44	4.28	-4.59*
The work children do is divided into subject matter areas.	2.44	4.11	-3.50*
The teacher's lessons and assignments are given to the class as a whole.	1.13	4.11	-10.60*
Children spontaneously look at and discuss each other's work.	4.56	2.28	+5.70*
The teacher bases her instruction on each individual child and his interaction with materials and equipment.	4.94	1.61	+15.00*
Children work directly with available manipulative materials.	4.88	2.22	+7.62*
Children may voluntarily use other areas of the building during their school time.	4.50	1.50	+6.57*
The teacher tries to keep all children within her sight so that she can make sure they are doing what they are supposed to.	1.44	4.17	-9.94*

TABLE 1 (cont.)

Statement	Experimental Mean	Control Mean	t
Children help one another.	4.06	2.11	+6.22*

The two schools differed primarily in the areas of teacher interaction with students, student grouping for classroom assignments, visual awareness of student activity by the teacher, and student modification of learning groups. The two schools are most similar in the frequency of subject matter division of learning, and in the frequency of grouping for specific student needs.

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*Statistically significant at the .001 level.

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On-Site Observations

During the course of the year the evaulator visited the experimental school at least once a month (and usually more often) to observe the learning activities, meet with the staff, and collect data as it became available. A brief report of each visit was furnished periodically to the staff for consideration. A review of the year-long observation reports follow.

The first report focused on two curriculararеas: career education and language arts. Posters and bulletin boards promoting career education activities were clearly visible in the early portion of the school year, and they continued to be visible and updated throughout the remainder of the school year. The increased attention to career awareness is in part due to the Career Education Workshop that the Experimental teachers attended in August, 1973. The staff cleverly linked these activities with social studies activities emphasizing Indian heritage at the beginning of the year, and this linkage, while not as successful later in the year, was attempted at various times.

The language arts area's utilization of standard workbooks (or dittoed facsimiles) created some problems, for the less motivated children occasionally copied notebook pages rather than attempted to understand concepts and develop skills. This problem endured in varying degrees throughout the year. The key difficulty in the language arts area seemed to be the generation of maximum language arts development with a minimum of forced motivation. The staff worked to solve this problem throughout the year but they were not totally successful.

The second report indicated that the approach utilized at the beginning of the year -- diagnosis and prescription for cognitive learning deficiencies -- had waned somewhat in frequency. Some staff members

continued to utilize this approach with varying degrees of success, while others were either unsuccessful or disappointed with the success rate achieved that they apparently abandoned it.

Small-group work by children and teacher-directed small-group lessons were not as effective as they could have been. In-service time should be devoted to this area.

The language art segment of the curriculum continues to be a trouble spot which needed to be remedied. Interest in language arts activities seemed low at this time.

Opportunities for above average growth by above average students seemed enormous; however, problems continued for the less motivated students and those students of below average skill at the upper elementary level.

The third report focused on items of concern mentioned above, as well as the need for modification of learning center activites to attract less motivated students. Serious consideration of learning center modification seemed imperative.

A review of staff minutes for 1973-74 indicates that the evaluator's periodic reports were generally discussed at staff meetings. Occasionally, some suggestions led to immediate change in aspects of the program. However, some important segments of the reports either were not discussed or were apparently considered superficially. The prime focus of staff meetings should be individual student difficulties and program adjustments for improved student learning.

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Parent Questionnaire

A survey of experimental school parents was arranged in order to identify if the open concept approach to elementary education was becoming institutionalized. A questionnaire similar to the one utilized in the 1972-73 evaluation was employed. Results are tabulated in Table 2.

TABLE 2

Experimental parent views of Open-Concept Education

n = 30

Statement	Yes	No	Not sure	No answer
Does your child seem satisfied with school this year?	93%	7	0	0
Is your child doing better in school this year?	67	3	20	10
Do you know your child's teacher better this year?	83	3	3	10
Do you like the open-concept program for your child?	60	10	27	3
Have you visited your child's school this year?	97	3	0	0
Does your child tell you about what he or she does in the program?	100	0	0	0
Is your child more interested in school this year?	77	7	3	13
Do your friends or neighbors know what the open-concept program is?	57	10	33	0
Do you feel that your child is learning more this year compared to other years?	70	10	17	3
Have you attended a school council, PTA, or advisory council meeting this year?	47	50	0	3
Have your feelings toward the open-concept program changed this year?	33	47	10	10

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TABLE 2 (cont.)

Statement	Yes	No	Not sure	No answer
Do you like the program more this year than last year?	60	13	17	10
Have you been at a parent conference with your child's teacher this year?	100	0	0	0
Does your child like school more this year than last year?	70	13	7	10
Do you think the open-concept program is better for your child than a regular program?	57	20	23	0

The Finlayson Open-Concept Program wants children to:

3% (a) learn whatever they want all day by themselves.

13 (b) learn what the teacher wants them to learn and when the teacher says so.

7 (c) learn what the teacher chooses but when they want to.

57 (d) learn what the teacher and child together choose but in the order and way the child wants to.

20 (e) no answer.

Important findings include the results that 60% of the respondents liked the program for their children, and that 70% felt that their children were learning more this year. Also, 57% asserted that the open-concept program was better for their children than a regular program.

Unfortunately, the number of respondents dropped from 67 in 1972-73 to 30 in 1973-74. Since there are over one hundred families, the response rate is approximately 30%, and inferences based on such a small return are tenuous. In general, the respondents seemed satisfied with the

school. Additional efforts must be made to increase the response rate on parental questionnaires, so that a more accurate assessment of parental feeling might be obtained.

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In May, 1974, a questionnaire was distributed to the staff members at the experimental school; its purpose was to develop a profile of the staff's views of the program and its operations.

All professionals and paraprofessionals were asked to rate the presently operating open-concept program in terms of its proximity to an ideal open-concept program. Table 3 contains results of the ratings.

TABLE 3

Staff Perceptions of Program

Proximity to Ideal Open-Concept*
n = 9, 9

Statement	Teachers' Mean	Aides' Mean
Students are developing better attitudes and a sense of responsibility.	2.89	2.89
Staff members respect and trust one another.	3.78	2.67
The principal is committed to the open-concept.	3.00	1.89
Students are learning the basic skills.	3.00	2.78
Students are developing curiosity and creativity.	2.78	2.44
The principal is helpful and supportive.	2.67	1.89
Teachers have a great deal of influence on the program.	3.34	1.87
This is a well integrated program.	3.34	2.62
There is good communication with parents.	2.79	3.88

* 1.0 indicates close proximity, and 7.0 indicates total lack of proximity.

Table 3 reveals that the teachers view the open-concept program as approximating the ideal in three areas: principal support, communication with parents, and student development of curiosity and creativity. The program is most distant from the ideal on staff trust and respect.

On the other hand, the paraprofessionals view the program's closest proximity to the ideal in three areas: teacher influence on the program, principal support, and commitment of the principal to the program. The program is considered weakest in the area of communication with parents.

Table 4 presents the data of Table 3 in a more visual form which clearly indicates the differing perceptions of the professionals and the paraprofessionals. Obviously, there seems to be a communication gap between the teachers and the aides for some of the perceptions to differ so widely. In-service attention should be devoted to this matter.

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TABLE 4

Staff Perception of Program

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Statement	
Students are developing better attitudes and a sense of responsibility.	
Staff members respect and trust one another.	
The principal is committed to the open concept.	
Students are learning the basic skills.	
Students are developing curiosity and creativity.	
The principal is helpful and supportive.	
Teachers have a great deal of influence on the program.	
This is a well integrated program.	
There is good communication with parents.	

_____ Teachers' Perceptions

---------- Aides' Perceptions

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Teachers and aides responded to questions about the operation of the program. In most categories, they generally agreed; in those areas of disagreement, the differences will be pointed out. Teachers and aides felt that they had enough privacy in the school most of the time; aides felt that students needed more privacy, while teachers felt that students had enough privacy most of the time.

Teachers and aides indicated that film viewing in learning centers occurred approximately once a month, while filmstrip or slide viewing occurred more than once a month. Both frequencies seem rather low for such a program.

Tape recorders and listening stations were reportedly used three or four times a month, on the average. This seems a low frequency also. Availability of operable hardware to all teachers and learning centers seems to be the major reason for the limited use of these audio-visual materials.

Both teachers and aides indicate that older children work with younger children most of the time; observation data reported in the first section of the report verifies this perception.

Teachers report they spend, on the average, four to five hours per week in individual planning and preparation, while aides spend approximately one to two hours per week. In joint planning with teachers, aides spend less than an hour per week, while teachers report they spend two to three hours in such activity. Teachers also report they spend approximately one-fourth of their time working with their colleagues.

A surprising finding is that some experimental teachers rate their teaching style as moderately traditional. Perhaps these staff members have had difficulty adjusting to the open-concept program; the in-service workshop should address itself to this question.

Additionally, two of the teachers indicate that they have difficulty

in integrating new methods and materials into their teaching style. The workshop should focus on this item also.

Finally, teachers and aides were asked to submit suggestions for program improvement. Suggestions, of varying frequency, were provided by the nine teachers, as follows:

1. Development of an effective system of discipline
2. Improvement of staff communication
3. Increased communication between staff and administration
4. Equitable distribution of aides between early and later elementary segments of the program
5. Establishment of a standard set of reporting and record-keeping procedures
6. Utilization of the surrounding outdoor environment
7. Bi-monthly teacher meetings, outside the school, to review accomplishments and modify the program
8. Increased communication with parents
9. Development of agreement on school goals and means of achieving them
10. Development of means to reduce interruptions by children when tutoring an individual student
11. Reintroduction of science laboratory

Paraprofessionals, on the other hand, submitted the following list of program suggestions:

1. Increased communication among the staff
2. Development of special programs for "low motivation" students
3. Increased emphasis on basic skill development
4. Increased parental involvement
5. Increased guidance
6. Introduction of short-term goals for children
7. Stronger leadership
8. Staff meetings that focus on discussion of student needs

The In-service workship should attend to these suggestions and consider the possibility of implementation. Since the teachers and aides agree on several suggestions, it would appear that staff consensus exists and needs only to be utilized in these areas. Other suggestions may require prolonged discussion before a decision is made.

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Staff Interviews

An interview of staff members was scheduled at the end of the school year to assess their perceptions of the program and to fill in possible gaps of information that the staff questionnaire failed to elicit. The roving teachers (art, music, physical education) were excluded on the basis of infrequent opportunities to work closely with the permanent staff.

In terms of the curriculum, teachers viewed career education and the preschool learning center as the strongest and most effective segments of the program. The aides, on the other hand, viewed the reading and math components as the strongest in the program.

Teachers reported that science and the "lab" learning centers were the weakest segments of the program, while the aides rated science and language arts as weakest. A tabular form of the staff's views is found in Table 5.

TABLE 5

Staff Views of Strongest, Weakest Segments

of Open-Concept Program

n = 19

Program Segment	Strongest +2	Second Strongest +1	Second Weakest -1	Weakest -2	Total
Science	0	1	2	7	-15
"Lab"	0	0	1	4	- 9
Music	0	0	1	1	- 3
Social Studies	1	1	3	0	- 0
Indian Culture	0	1	0	0	+ 1
Language Arts	4	1	7	0	+ 2
Reading	4	2	1	2	+ 5
Math	3	4	1	2	+ 5

TABLE 5 (cont.)

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Staff Views of Strongest, Weakest Segments of Open-Concept Program

Program Segment	Strongest +2	Second Strongest +1	Second Weakest -1	Weakest -2	Total
Physical Education	2	1	0	0	+ 5
Preschool	1	4	0	0	+ 6
Career Education	3	1	0	0	+ 7

A review of this table indicates that the science and "laboratory" components of the program need to be discussed and revised substantially. Additionally, music and social studies elements of the program should be carefully reviewed during the in-service workshop.

The staff members were asked to specify the major strength and the major weakness of the open-concept program. Teachers listed the following as major strengths:

1. Children accepting partial responsibility for their own education
2. Visible changes in affective behavior
3. Available option for students to group and regroup with others
4. Option to identify children's learning patterns
5. Improvement in self-concept of children
6. Total openness of children
7. Acceptance of program by children
8. Flexibility of program

Paraprofessionals listed the following strengths:

1. Positive attitude of children toward staff members
2. Spontaneity of children
3. Communication between children and staff
4. One-to-one basis for instruction
5. Opportunity for children to work at their own rate
6. Individual interaction with each child

On the other hand, teachers reported the major weakness as the following:

1. Lack of uniform assessment process by all teachers
2. Weak communication among staff about children
3. Lack of communication
4. Lack of some structure to program
5. Lack of commitment of some staff members to "openess"
6. Failure to offer numerous activities for younger children
7. Interruptions during activities by wandering students
8. Inadequate management and disciplinary procedures
9. Insufficient time for responsibilities and duties

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Teacher aides perceived the following as weaknesses of the program:

1. Lack of communication among staff members about students
2. Poor communication among staff members
3. Lack of student respect for some staff members
4. Constant need to prod certain, low motivation students
5. Conflict between home and school discipline patterns
6. Lack of reading skill improvement by pupils
7. Student concentration time span not considered

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All staff members were encouraged to provide program suggestions during the interview. Many of these suggestions are the same ones which were reported in the staff questionnaire.

Teachers were much more vocal in suggesting program modifications. The surprising result reported in the questionnaire section regarding the moderately traditional teaching style of some staff members is supported by some of the suggestions, which follow.

1. More uniform methods of instruction
2. Emphasis on affective development
3. More frequent meetings to promote staff unity
4. More time for individual conferences with aides
5. More advanced planning in groups by teachers
6. More staff sensitivity to Indians
7. Utilization of "open rooms" rather than an "open school" for younger children
8. Development of an isolation site for behavioral problems
9. Better utilization of monthly in-service planning time
10. A Minimum time for students to remain in a learning center
11. More music
12. Equal distribution of privileges

Teacher Aides provided an interesting conglomeration of program suggestions which follow.

1. More follow-up of students
2. More communication among staff members
3. Improvement of math and social studies learning centers
4. Improved appearance of learning centers
5. A training program for aides in the open-concept program
6. Utilization of a structured segment for a larger portion of the school day.
7. Increased home support for the program
8. More sequential learning in learning centers
9. Utilization of "open rooms", not "open school"
10. Elimination of hall wandering
11. Elimination of cooking component of "lab" center

Staff members were also provided with the opportunity to suggest evaluation procedure (internal and external) modifications. Their

suggestions are as follows:

1. Utilization of a team evaluation approach
2. Elimination of standardized testing
3. Uniform evaluation process for conferences with students
4. Dispersal of testing dates
5. Periodic teacher-made tests
6. Utilization of internal professional visits for advice
7. More utilization of skills booklet
8. More conferences with students

In general, most staff members are somewhat satisfied with the existing program, but they wish to modify it and improve it.

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Junior High School Follow-Up

A component of the evaluation design this year was data collection at the Junior high level; the performance of former experimental school students in a more traditional setting was the focus of concern.

Data was collected in three specific areas: absenteeism (a problem in the past), disciplinary actions (likewise a former problem), and classroom options and performance. Results are tabulated in Table 6.

TABLE 6

School Performance: Former experimental students
Percentages

	Grade 7		Grade 8	
Category	Sem. 1 (n=31)	Sem. 2 (n=29)	Sem. 1 (n=19)	Sem. 2 (n=16)
Daily absentee rate	6 %	16*	8	19**
Discipline referral rate***	14		22	
Academic failure rate -- Math	16	4	5	6
-- English	33	5	24	14
-- Social Studies	26	24	6	19
-- Science	13	4	32	25

* Of the total absence days (438), four students accounted for 176 absences; their rate was 48%.
** Of the total absence days (273½), four students accounted for 127; their absentee rate was 34%.
*** Discipline referral rate was calculated only at the end of the school year; it indicated referrals of one or more times.

Table 6 indicates that former experimental students who were in the seventh grade decreased their failure rate remarkable in three of the four basic subjects. Eighth graders from the experimental school did not make such reversals.

For the seventh graders English and Social Studies are the subjects

which are most difficult, while for eighth graders English and Science are the most difficult. The improved math program at the experimental school seems to be having some long-term effect, as the math failure rate is low in both grades. Increased attention to the language arts, science, and social studies components of the open-concept experimental program is imperative, if long-term positive effects are desirable.

The absentee rate is very similar to the previous year's rate for both grades. The difficulty of winter travel from Sugar Island, a source of students who attended the experimental program, skews the second semester attendance rate somewhat.

The discipline referral rate continues to decline. It is expected to remain at a low level in the future.

Junior high school pupils have the opportunity to select optional courses to complete their schedules. The choices of former experimental school students are reported in Table 7.

TABLE 7

Student Selection of Optional Courses

Former experimental school students

Option	Grade 7 Sem. 1 (n=31)	Grade 7 Sem. 2 (n=29)	Grade 8 Sem. 1 (n=19)	Grade 8 Sem. 2 (n=16)
Home Economics	---	10	12	---
Shop	---	14	7	2
Art	9	3	1	1
Band	2	2	2	1
Electronics	---	---	---	1
Choir	4	5	4	4
Creative Stitchery	3	3	---	---
Small Gas Engines	5	4	3	4
Conservation	6	7	---	2
Competitive Swim	2	4	---	---

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TABLE 7 (cont.)

Option	Grade 7 Sem. 1 (n=31)	Grade 7 Sem. 2 (n=29)	Grade 8 Sem. 1 (n=19)	Grade 8 Sem. 2 (n=16)
Building Construction	---	1	3	1
Sewing Crafts	---	---	---	1
Drafting	---	1	---	---

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A review of the grade distribution at the end of the second semester for the four required courses indicates that the grade eight students seem to continue their performance levels in math and english, but in science and social studies there seems to be slippage in grades. Table 8 illustrates the results.

TABLE 8

Required Course Grade Distribution: Second Semester

Former experimental students: grades 7,8

Category	Grade 7 (n=29) A	B	C	D	E	Grade 8 (n=16) A	B	C	D	E
English	1	3	9	7	1	2	1	8	1	2
Math	2	9	13	4	1	3	4	4	4	1
Science	3	5	10	10	1	1	1	3	7	4
Social Studies	1	1	8	12	7	2	1	7	3	3
Communication Skills*	2	2	3	1	0	0	0	0	2	0

* Some English students are assigned to special Communication Skills program.

The seventh graders from the experimental school achieved A's or B's at the rate of 25%, while eighth graders do so at a rate of 23%. This indicates only a slight decrease for the eighth graders from their rate as seventh graders (27%). In both grades, experimental students have the highest A, B rate in math.

On the other hand, seventh graders received D's and E's at a rate of 38%, while eighth graders received D's and E's at a rate of 42%. This indicates a slight increase for the eighth graders from their rate as seventh graders (33%).

It seems that the experimental program has its greatest academic sphere impact in math, and that student academic patterns exhibited in the seventh grade continue through the eighth grade without appreciable change.

The evaluator had intended to survey the junior high school staff and ask them to rate the former experimental school students in comparison to other elementary school graduates. During preparation of the survey, the evaluator held conferences with the junior high assistant principal and other staff members; they indicated that most junior high teachers would have great difficulty in making such judgements, since the former experimental school students are not distinguishable from the other students on an academic or disciplinary basis. On the basis of their suggestions, the evaluator, through the auspices of the assistant principal, requested any junior high staff members to submit, anonymously, a reporting of any academic or disciplinary identification of former experimental school students, i.e., any indication that these students stood out. No reports were received. This substantiates the assistant principal's claim that present-day experimental school students are indeed different from those in the past; they are not isolatable on academic or disciplinary grounds from other students.

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Review of Achievement Data

A pre-post, experimental-control comparison research design was employed in all appropriate areas so that within-group and between- group results could be identified. This quasi-experimental research design was required, since randomization of procedures and of student assignment could not be utilized.

For most catergories, i.e., achievement test batteries, IQ testing, and psychomotor skill review, post-test scores from May, 1973, were used as pre-test scores for the 1973-74 school year. The scores were assumed to be slightly higher than September, 1973 test scores would have been, due to loss of retention during summer. Students in levels corresponding to grades 1, 3, and 5 were pre-tested in September, 1973 on the Stanford Achievement Test, since first-year students were new, and grade 3 and 5 students' batteries changed categories from grades 2 and 4, respectively.

Post-tests were administered in May, 1974. All testing was conducted in a regular classroom or learning center context, except for the Purdue Perceptual Motor Survey which was administered at the experimental school to both groups.

Instrumentation

The Tests of Basic Experiences (TOBE) was administered to preschool and kindergarten to measure gains in general achievement in four curricular areas: mathematics, science, language, and social studies.

The Otis-Lennon Mental Ability Tests were given to students in classrooms and learning centers corresponding to grades 1 to 6. This instrument was employed to identify the similarity or dissimilarity of the intellectual ability of the students in both schools.

The Purdue Perceptual Motor Survey was utilized to assess psychomotor and perceptual development. All students in the experimental

school were tested, but very few control school students were tested, with no control school data available at the pre-school and fourth grade level. Since scoring involves considerable subjectivity, and since the administering staff was selected experimental school staff members, the results require careful scrutiny.

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The Stanford Achievement Tests were employed as the academic achievement instruments. The various batteries employed yielded results in six to ten categories; curriculary areas from reading and language to mathematics and science are included. One difficulty encountered was the utilization of SATs at an atypical level; the experimental students formerly scored at a low level on the Michigan Assessment Test, and the original evaluation design took this fact into account. Though the testing was at an atypical level, both experimental and control school students took the same batteries, so that comparison of gain scores is not statistically unsound.

IQ Results

Initially, an analysis of pre-test results of the Otis-Lennon Mental Ability Test was made to determine similarity or dissimilarity of experimental and control school student populations. Results are tabulated in Table 9. T-tests applied to this data indicate that the two populations were significantly different at only the third grade level.

TABLE 9

Otis-Lennon Mental Ability Test

Pre-test scores: experimental, control

	Experimental			Control				
Grade	n	mean	s.d.	n	mean	s.d.	df	t
1	18	95.67	8.73	27	95.74	12.91	43	-0.02
2	26	101.46	12.69	23	106.70	13.71	47	-1.39
3	24	98.04	13.00	32	112.38	13.40	54	-4.01*

TABLE 9 (cont.)

Grade	Experimental n	Experimental mean	Experimental s.d.	Control n	Control mean	Control s.d.	df	t
4	23	101.87	14.79	33	110.27	12.88	54	-2.26
5	22	91.59	14.44	36	100.56	14.21	56	-2.32
6	24	92.63	14.88	28	100.29	14.24	50	-2.89

* Significant at the .01 level

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A review of the post-test results in Table 10 indicates that at all grade levels experimental and control school students made similar gains in scholastic aptitude. The loss at the fourth grade level in both schools is similar to the loss that occurred in the previous year. These findings seem to indicate that the experimental program is as effective as a conventional elementary program in improving scholastic aptitude.

TABLE 10

Otis-Lennon Mental Ability Test

Pre-post gain scores: experimental, control

Grade	Experimental n	Experimental mean	Experimental s.d.	Control n	Control mean	Control s.d.	df	t
1	18	+6.89	9.42	27	+8.11	11.44	43	-0.38
2	26	+0.19	9.89	23	+1.70	7.31	47	-0.60
3	24	+1.54	10.40	32	-2.19	6.32	54	+1.66
4	23	-7.13	12.20	33	-3.27	9.33	54	-1.34
5	22	+1.41	8.53	36	+0.39	6.80	56	+0.50
6	24	+2.46	7.92	28	+2.86	4.99	50	-0.22

Post test IQ scores are found in the Appendix

Psychomotor Results

The results indicated in the following tables relative to psychomotor skill development in the experimental and control schools are of

such a nature that they should be carefully scrutinized, especially in view of the subjective scoring that the Purdue Perceptual Motor Survey involves. In view of last year's results that indicated the most pronounced changes in psychomotor scores occurred at the K - 3 level, large numbers of control students at that level should have been tested and only a selected number at the 4 - 6 grade level. Yet, as the tables illustrate, the reverse occurred. No data was provided for fourth-grade control students, for they were on a field trip the day of testing. In view of the minimal significant differences, consideration should be given to elimination of the psychomotor testing or utilization of a more refined and objective instrument.

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TABLE 11

Purdue Perceptual Motor Survey

Raw score gains: Balance

Grade	Experimental n	Experimental mean gain	Control n	Control mean gain	df	t
1	17	+0.18	3	+0.67	18	-0.22
2	25	+0.44	11	+1.55	34	-1.77
3	21	+0.48	15	+0.13	34	-0.18
4	23	+0.13	NO DATA			
5	22	+0.45	20	+0.35	40	+0.36
6	23	+0.52	21	+0.29	42	+0.82

TABLE 12

Purdue Perceptual Motor Survey

Raw score gains: Body Image

Grade	Experimental n	Experimental mean gain	Control n	Control mean gain	df	t
1	17	+0.35	3	+0.33	18	+0.01
2	25	-0.16	11	+1.27	34	-2.27*
3	21	+0.48	15	+0.67	34	-0.50
4	23	-0.22	NO DATA			

TABLE 12 (cont.)

Grade	Experimental n	Experimental mean gain	Control n	Control mean gain	df	t
5	22	+0.45	20	-0.35	40	+1.07
6	23	-0.004	21	+0.04	42	-0.16

* significant at the .05 level

TABLE 13

Purdue Perceptual Motor Survey

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Raw score gains: Perceptual-Motor

Grade	Experimental n	Experimental Mean gain	Control n	Control Mean gain	df	t
1	17	+5.00	3	+4.00	18	+0.30
2	25	+1,92	11	-0.45	34	+2.18**
3	21	+0.69	15	+0.47	34	+0.15
4	23	-0.78		NO DATA		
5	22	+0.50	20	-0.70	40	+1.36
6	23	+1.43	21	-1.33	42	+3.64*

* Significant at the .001 level
**Sifnificant at the .05 level

TABLE 14

Purdue Perceptual Motor Survey

Raw score gains: Ocular Control

Grade	Experimental n	Experimental mean gain	Control n	Control mean gain	df	t
1	17	+1.76	3	+5.33	18	-1.11
2	25	+0.36	11	+1.54	34	-0.82
3	21	+0.57	15	+3.00	34	-2.76 *
4	23	+0.09		NO DATA		
5	22	+0.14	20	-0.85	40	+1.36
6	23	-0.04	20	+0.60	41	-0.86

* Significant at the.01 level

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TABLE 15

Purdue Perceptual Motor Survey

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Raw score gains: Form Perception

Grade	Experimental n	Experimental mean gain	Control n	Control mean gain	df	t
1	17	+0.24	3	+1.67	18	-1.78
2	25	+0.36	11	+0.91	34	-1.32
3	21	+1.14	15	+0.73	34	+0.35
4	23	+0.04		NO DATA		
5	22	+0.36	20	+0.25	40	+0.31
6	23	-0.52	21	-0.10	42	-0.99

TABLE 16

Purdue Perceptual Motor Survey

Post-test Total Raw Scores: Experimental, Control

Grade	Experimental n	Experimental mean	Control n	Control mean
1	17	62.94		
2	25	67.00		
3	21	72.57		
4	23	74.00		
5	22	76.27		
6	23	77.09		

Results illustrated in Table 16 indicate that experimental students achieved the psychomotor objective of a minimum score of 65 on the Purdue survey, except for grade one students. Since the later elementary level scores greatly exceed the program objective, psychomotor testing should be concentrated only at the K - 2 level.

Cognitive Achievement Results

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The Test of Basic Experiences (TOBE) was administered to all pre-school and kindergarten children in the experimental and control schools. Kindergarten children were compared on mean raw gain scores, as indicated in Table 18.

TABLE 17

Test of Basic Experiences

Post-test scores: experimental, control

Category	Experimental pre-school mean (n=14)	Experimental kindergarten mean (n=22)	Control kindergarten mean (n=42)
Math	25.14	26.54	23.62
Science	25.36	24.27	23.98
Language	26.21	25.14	24.24
Social Studies*	26.46	24.36	23.71

* N=13, for pre-school

A review of Table 17 indicates that the experimental preschoolers and kindergarteners achieved higher post-test scores than did control school kindergarteners. The preschool component of the program continues to build a strong base for future scholastic achievement.

TABLE 18

Test of Basic Experiences

Pre-post raw score gains; experimental, control
df = 62

Category	Experimental mean gain	Control mean gain	t
Math	+9.41	+3.62	+5.39*
Science	+5.86	+5.02	+0.86
Langauge	+8.32	+4.48	+3.49**
Social Studies	+8.50	+4.62	+3.67**

* Significant at the .001 level
** Significant at the .002 level

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The previous year's success in math and social studies has been continued, and the language component has now assisted experimental kindergarteners in achieving at a significantly higher level.

The Stanford Achievement Tests were utilized as pre-test and post-test batteries, except for the first graders. Since the control school first graders were involved in another project which required use of the Stanford Early School Achievement Test as a pre-test, both schools utilized the SESAT. However, since grade equivalents do not exist for the SESAT, only post-test grade equivalents are reported for the first graders. Even though the above mentioned project arbitrarily assigned a pre-test grade equivalent level of 0.8 for all categories, the evaluator judges this approach to be less than sound. If this approach were taken, the experimental first graders would have achieved the program's objectives in all categories of the SAT.

Additionally, since the SAT was used atypically, i.e., Primary I, Primary II, and Intermediate I were used in grades 2, 4, and 6, respectively, grade equivalent norms for such usage were intended to be used. However, the SAT publisher indicated that such norms for atypical usage do not exist. Yet since both groups were administered the same batteries in the identical atypical manner, comparison of raw score gains is statistically sound.

TABLE 19

Stanford Achievement Test: Grade 2

Pre-post raw score gains: experimental, control
df = 40*

Subtest	Experimental (n=24) mean gain	s.d.	Control (n=18) mean gain	s.d.	t
Word Meaning	+ 8.96	4.51	+12.39	4.39	-2.47**
Paragraph Meaning	+ 8.50	9.36	+10.78	6.52	-0.88

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TABLE 19 (cont.)

Subtest	Experimental (n=24) mean gain	s.d.	Control (n=18) mean gain	s.d.	t
Vocabulary	+5.58	3.80	+6.78	5.05	-0.88
Spelling	+7.13	6.45	+6.53	2.76	+0.36
Word Study Skills	+8.13	7.53	+8.61	5.72	-0.23
Arithmetic	+11.17	12.37	+12.89	5.78	-0.55

* n = 17 and df = 39 for spelling subtest.
** Significant at the .02 level

Table 19 indicates that the control school pupils significantly exceeded the experimental school students in only one category, word meaning. In all other categories the two schools are comparable in achievement levels in the second grade.

TABLE 20

Stanford Achievement Test: Grade 3

Pre-post raw score gains: experimental, control

df = 54*

Subtest	Experimental (n=22) mean gain	s.d.	Control (n=34) mean gain	s.d.	t
Word Meaning	+4.36	4.92	+5.21	4.66	-0.65
Paragraph Meaning	+7.05	10.03	+7.03	6.32	+0.01
Science	+3.09	3.44	+2.71	3.17	+0.43
Spelling	+6.91	4.22	+4.29	3.94	+2.36**
Word Study Skills	+5.45	7.09	+4.82	6.11	+0.35
Language	+4.05	8.22	+2.85	6.98	+0.58
Arithmetic Computation	+12.36	7.01	+5.58	10.54	+2.65 ***
Arithmetic Concepts	+4.82	5.04	+6.00	6.20	-0.74

*N = 33 for the control group and df = 53 for arithmetic subtests
** Significant at the .05 level
*** Significant at the .02 level

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Experimental school pupils made significantly greater gains in two categories: spelling and arithmetic computation. In all other categories, the two groups are comparable.

A review of Table 21 indicates that the control school pupils significantly exceeded the experimental pupils in one category: arithmetic computation. In the other categories, raw score gains favored the control school but not at a significant level.

TABLE 21

Stanford Achievement Test: Grade 4

Pre-post raw score gains: experimental, control

df = 53

Subtest	Experimental (n=23) mean gain	s.d.	Control (n=32) mean gain	s.d.	t
Word Meaning	+2.78	3.61	+2.97	3.55	-0.19
Paragraph Meaning	+6.87	8.78	+6.94	6.11	-0.03
Science	+3.91	4.90	+3.00	3.99	+0.76
Spelling	+3.65	3.65	+5.34	3.95	-1.62
Word Study Skills	+4.70	6.38	+6.47	7.79	-0.90
Language	+4.52	6.29	+5.50	5.23	-0.63
Arithmetic Computation	+9.22	7.33	+14.03	8.79	-2.14*
Arithmetic Concepts	+5.83	6.74	+6.38	5.78	-0.32

* Significant at the .05 level

Data for grade 5 pupils is found in Table 22. Each school had a statistically significant gain in one category: the experimental school in science, and the control school in spelling.

TABLE 22

Stanford Achievement Test: Grade 5

Pre-post raw score gains: experimental, control

df = 58*

Subtest	Experimental (n=22) mean gain	s.d.	Control (n=38) mean gain	s.d.	t
Word meaning	+3.68	4.40	+3.05	3.62	+0.60
Paragraph Meaning	+7.00	5.40	+6.26	6.58	+0.45
Spelling	+1.00	5.18	+3.74	4.45	-2.16**
Word Study Skills	+5.82	6.61	+3.82	5.16	+1.31
Language	+10.86	10.84	+8.84	6.88	+0.89
Arithmetic Computation	+6.73	8.11	+7.74	5.48	-0.57
Arithmetic Concepts	+1.64	5.59	+2.44	3.29	-0.71
Arithmetic Application	+2.24	4.48	+3.13	4.39	-0.74
Social Studies	+1.33	4.05	+2.11	5.94	-0.53
Science	+9.14	7.75	+3.95	8.64	+2.29**

* N=21 for the experimental group and df=57 on science, social studies, and arithmetic applications subtests.

**Significant at the .02 level

Table 23 illustrates the gain scores for sixth graders. The experimental pupils made statistically significant gains in one category: work study skills.

TABLE 23

Stanford Achievement Test: Grade 6

Pre-post raw score gains: experimental, control

df = 50

Subtest	Experimental (n=24) mean gain	s.d.	Control (n=28) mean gain	s.d.	t
Word Meaning	+5.25	4.26	+4.32	3.73	+0.84
Paragraph Meaning	+5.21	6.37	+3.68	7.56	+0.78
Spelling	+4.58	5.22	+5.82	5.55	-0.82

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TABLE 23 (cont.)

Subtest	Experimental (n=24) mean gain	s.d.	Control (n=28) mean gain	s.d.	t
Word Study Skills	+7.79	8.82	+3.14	5.09	+2.37*
Language	+6.67	14.81	+7.82	7.78	-0.36
Arithmetic Computation	+5.13	4.90	+6.04	5.63	-0.62
Arithmetic Concepts	+4.63	4.09	+4.04	4.57	+0.49
Arithmetic Application	+1.88	3.43	+3.46	4.32	-1.45
Social Studies	+3.83	6.82	+3.96	5.49	-0.07
Science	+5.33	6.98	+7.64	6.75	-1.21

* Significant at the .05 level

Another approach to review of the cognitive achievement data involves comparison of the post-test grade level equivalents for experimental and control school pupils. Tables 24 to 29 report this data.

In Table 24 one should notice that in only one category, paragraph meaning, are the experimental school students below grade placement at the time of testing. In two categories, work reading and paragraph meaning, the control school pupils are slightly below grade level. This result for the experimental school is in marked contrast with the typical performance in the past.

TABLE 24

Stanford Achievement Test: Grade 1

Post-test grade level equivalents: experimental, control

n = 18, 30

Subtest	Experimental mean	Control mean
Word Reading	1.80	1.76
Paragraph Meaning	1.60	1.76
Vocabulary	1.92	1.80
Spelling*	1.83	2.16
Word Study Skills**	2.01	2.23
Arithmetic	1.86	2.08

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* N = 15 for the experimental group
** N = 17 for the experimental group

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A perusal of Table 25 points out the average gains made by the experimental and control pupils; in the second grade; in one category, spelling, the experimental subjects exceeded the program objective of 0.75 grade equivalent gain. The work study skills average gain nearly meets the objective.

TABLE 25

Stanford Achievement Test Grade 2

Post-test grade level equivalents: experimental, control

	n = 25, 21 Experimental		Control	
Subtest	mean	ave. gain	mean	ave. gain
Word Meaning	2.28	+0.65	2.67	+0.99
Paragraph Meaning	2.05	+0.58	2.38	+0.75
Vocabulary	2.34	+0.64	2.99	+0.99
Spelling	2.33	+1.10	2.76	+1.09
Word Study Skills	2.40	+0.70	3.38	+0.85
Arithmetic	2.48	+0.56	2.88	+0.80

In three categories the control school subjects did not make one year's growth, while in only one category did the experimental subjects achieve a year's growth.

In Table 26 data indicates that the experimental subjects achieved the program's goal of 0.75 grade equivalent gain in four categories: science, spelling, language, and arithmetic computation. However, the post-test scores point out the below-grade level ranking of the experimental subjects. While the second graders are only slightly below grade level, the third graders are more so.

TABLE 26

Standford Achievement Test: Grade 3

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Post-test grade level equivalents: experimental, control

Subtest	n = 24, 34 Experimental mean	ave. gain	Control mean	ave. gain
Word Meaning	2.80	+0.63	3.66	+0.71
Paragraph Meaning	2.79	+0.70	3.54	+0.54
Science and Social Studies	2.95	+0.75	3.64	+0.68
Spelling	3.03	+1.21	3.51	+0.63
Word Study Skills	3.10	+0.63	4.40	+0.81
Language	2.45	+0.91	3.20	+0.30
Arithmetic Computation	2.80	+0.78	3.21	+0.37
Arithmetic Concepts*	2.82	+0.56	3.77	+0.64

* N = 33 for the control school on these subtests.

In table 27 one can identify the two categories in which project objectives were achieved: science and arithmetic computation. The experimental students are most deficient, grade equivalent-wise, in the language arts area. The control school pupils also exhibit a deficiency in the language arts, but not to the degree of the experimental pupils. More attention to improved language arts learning centers in the experimental school is imperative.

TABLE 27

Stanford Achievement Test: Grade 4

Post-test grade level equivalents: experimental, control

Subtest	n = 23, 32 Experimental mean	ave. gain	Control mean	ave. gain
Word Meaning	3.27	+0.45	4.31	+0.61
Paragraph Meaning	3.42	+0.56	4.62	+0.76

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TABLE 27 (cont.)

Subtest	Experimental mean	Experimental ave. gain	Control mean	Control ave. gain
Science & Social Studies	3.83	+0.93	4.57	+0.82
Spelling	3.13	+0.46	4.61	+0.93
Word Study Skills	4.20	+0.60	5.18	-1.03
Language	3.04	+0.37	4.09	+0.64
Arithmetic Computation	3.52	+0.76	4.98	+1.32
Arithmetic Concepts	3.93	+0.55	5.08	+0.89

Mean grade equivalents for fith graders are located in Table 28. The experimental subjects exceeded the program's objective in four cognitive categories; paragraph meaning, science, arithmetic computation, and arithmetic concepts. Social studies and spelling categories exhibited the least gain. The control school subjects exhibited the largest average gains in the same four categories.

TABLE 28

Stanford Achievement Test: Grade 5

Post-test grade level equivalents; experimental, control

n = 22, 38

Subtest	Experimental mean	Experimental ave. gain	Control mean	Control ave. gain
Word Meaning	4.70	+0.67	5.09	+0.44
Paragraph Meaning	4.30	+0.80	5.43	+0.82
Spelling	4.17	+0.25	5.12	+0.67
Word Study Skills	4.55	+0.66	5.32	+0.61
Language	3.81	+0.61	4.77	+0.63
Arithmetic Computation	4.55	+0.94	5.11	+1.14
Arithmetic Concepts	4.71	+0.79	5.66	+0.94
Arithmetic Applications*	4.47	+0.48	5.42	+0.68
Social Studies*	4.27	+0.39	5.05	+0.51
Sciences*	4.89	+1.12	5.42	+0.83

* N = 21 for the experimental students
** N = 21 for the experimental subjects and n = 37 for the controls.

Finally, sixth grade students' scores are reported in Table 29. Experimental subjects achieved the program's objective in four categories: word meaning, word study skills, arithmetic concepts, and arithmetic computation. Science mean gain of 0.73 barely made the program objective of 0.75 gain. Experimental subjects made the smallest gains in arithmetic applications, language and social studies.

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TABLE 29

Stanford Achievement Test: Grade 6

Post-test grade level equivalents: experimental, control
n = 24, 28

Subtest	Experimental mean	Experimental ave. gain	Control mean	Control ave. gain
Word Meaning	5.11	+0.93	6.70	+1.00
Paragraph Meaning	4.83	+0.68	6.48	+1.15
Spelling	4.65	+0.59	6.03	+1.03
Word Study Skills	4.62	+1.05	5.66	+0.57
Language	4.06	+0.47	5.48	+0.86
Arithmetic Computation	5.33	+0.83	5.83	+0.96
Arithmetic Concepts	5.53	+1.03	6.15	+1.06
Arithmetic Application	5.13	+0.34	6.41	+1.15
Social Studies	5.22	+0.50	6.25	+0.73
Science	5.15	+0.73	6.49	+1.07

A review of Tables 24 - 29 in total provides evidence that the experimental program achieved its cognitive objective of 0.75 grade equivalent gain in two categories: science and arithmetic computation. For the later grades the project achieved its objective in arithmetic concepts. For the early grades the project achieved its objective in spelling. Also, the project generally met its objective or nearly did so in paragraph meaning. In all other categories, the project failed to meet its cognitive objective, except in two isolated cases. The language arts

area continues to be the area of major deficiency in achievement, and increased attention should be given to this component. It is recommended that the major portion of the in-service workshop prior to the opening of school be devoted to a thorough examination of the language arts approches utilized in the past, in order to modify or delete ineffective elements.

The finding regarding science achievement is surprising, in view of the fact that the science component was perceived by staff members to be the weakest element of the program. Obviously, staff members made judgments on a basis other than cognitive growth stimulation by a particular learning center. Apparently the science learning center was extremely effective across several grades, as was the mathematics learning center.

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Affective Domain Results

The data in this area is divided into three categories: absenteeism, vandalism, and attitudes toward self and school. Regarding attendance patterns, the monthly absenteeism rate fluctuated between 3 and 10% during the 1973-74 school year. The rate for 1972-73 also fluctuated between 3 and 10%. Often, one-third of absentee count reflected preschool absences. Results are in Table 30.

TABLE 30

Experimental School Absenteeism Rate

Month	No. absent	Enrollment	School days	%
September	103	175	19	3
October	253	173	24	6
November	375	174	20	10
December	220	176	15	8
January	374	177	23	9
February	404	178	20	10
March	362	179	21	9
April	209	179	17	6
May	315	179	23	7
June	65	179	4	9

The absenteeism rate has been reduced considerably from that rate prevalent in years prior to institution of the open-concept program. This does indicate that students are now more willing to attend and participate in school activities; they seem to value school more than in the past.

Only four instances of vandalism were reported during the 1973-74 school year. They occurred on October 5 (two incidents), October 20, and January 22. On the first date, some individuals broke into the school to play basketball; on the same date two cutting plates and a

wooden implement were taken from the kitchen. Since the kitchen adjoins the gymnasium area, it is very likely that the same persons were involved in both incidents. On October 20 a window in the library was broken, and on January 22 an outside window at the front of the building was broken. In none of the cases was there any evidence that experimental school pupils were involved. This low rate of vandalism contrasts with the significant number of incidents which occurred before introduction of the open-concept program. Seemingly, these experimental pupils now value their school building more.

The third area of concern is attitude toward self and school. Data was collected by two different means at two different times in the year. The Michigan Educational Assessment Program Pupil Attitude Questionnaire was given to fourth graders in October, 1973, and the experimental school Smiling Face Test was administered in May, 1974, to all students except preschoolers. Copies of the Michigan Assessment printout for the experimental school and total district fourth graders are found in the Appendix.

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Since percentages for the school are provided and not for individual pupils, only a rough estimate of the total test population's attitude toward school and toward self can be given. By summing the individual question percentages and dividing by the number of questions, a percentage for favorable attitude toward school and toward self can be determined. Sixty-six percent of the district's fourth graders indicated a favorable attitude toward school, while 58% of the experimental school's fourth graders had such an attitude. Regarding attitude toward self, district fourth graders held a 45% favorable rating, while experimental fourth graders had a 44% favorable rating. Since the Michigan Assessment Attitude Questionnaire has provided such a report only in the past year, comparisons to previous surveys are not possible.

The results suggest that the experimental school staff focus much

attention on improvement of self-concept of their students as one means of improving achievement. Interesting individual category results for the experimental students include the following:

* 56% wish their teachers liked them more
* 40% feel nervous when a teacher asks them a question
* 44% feel afraid to say anything in class because they may be wrong
* 44% sometimes feel they just can't learn
* 68% feel they usually cannot work as fast as others
* 76% feel their teachers are nice.
* 32% wish they did not have to go to school

Whether these attitudes typify the entire student body at the experimental school or are concentrated in the fourth and perhaps later grades is not known.

The Smiling Face Test required that experimental school pupils make judgments (positive, negative, or neutral) about various elements of the open-concept program. The results are displayed in Table 31.

TABLE 31

Smiling Face Test: percentages

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n = 134

Item	positive	neutral	negative	no answer
1. Coming to this school	52%*	28	20	0
2. What you do at this school	52	31	16	0
3. Eating breakfast at school	60	32	7	0
4. Myself as a student	46	43	10	1
5. My supportive room teacher	76	14	8	1
6. My other teachers	52	39	8	1
7. My friends at school	81	15	3	1
8. Science at school	41	30	28	1
9. Reading at school	54	31	13	1
10. Math at school	63	24	11	1
11. The "lab"	71	20	9	1
12. Social studies	39	37	23	1

5

TABLE 31 (con.t)

Item	positive	neutral	negative	no answer
13. Language	44	40	14	1
14. Physical education	90	6	3	1
15. Music	68	25	6	1
16. Art	73	18	7	1
17. Movies at school	79	15	5	1
18. Getting to choose what I do	65	26	7	1
19. Moving around a lot	58	30	10	1
20. Kids who break rules	6	21	72	1
21. How much I have learned this year	66	24	8	1
22. Being at this school next year	51	25	23	1
23. Myself last year	48	33	17	1
24. Myself now	60	28	10	1
25. Career education	60	24	14	1
26. I feel I can be honest on these questions I liked learning about	70	23	6	1

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* Rounded off to nearest whole percentage.

A review of this table suggests some positive accomplishments by the program. More children have a positive feeling about themselves than they did a year ago (60%, as compared to 48%). Fewer have a negative feeling about themselves (10% as compared to 17%). Only 10% have a negative feeling about their ability as a student. This contrasts markedly with the Michigan Assessment data for fourth graders. Since the Smiling Test data was not sorted as to grade level, direct comparisons cannot be made.

In general, the program seems to be making some progress in the affective domain. Even though only rough measures have been utilized, the data does suggest some growth in this area.

Review of Diffusion Study

In April, 1974, selected teachers in the Eastern Upper Peninsula were queried as to their knowledge of the Open-Concept program and the sources of their information. All elementary teachers as well as junior high teachers in the Sault Sainte Marie School District were surveyed. 75% of the local teachers returned their questionnaires. A random sample of elementary teachers and all elementary principals in the other school districts of the EUP were surveyed; the rate of return was 57%.

TABLE 32

Characteristics of Experimental School

Percentages of correct responses

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Item	In-town n=127	Out-of-town n=57
The number of teachers at the experimental school	52*	9
The number of aides at the experimental school	47	12
The number of students	65	19
The duration of operation of the experimental program	90	32
The ratio of Indian to non-Indian pupils	55	23

* Nearest whole percentage

As expected, the Sault Sainte Marie teachers were more knowledgeable about these specific items than were outlying teachers.

These same items were then reviewed as to the out-of-town responses; concentric circles of 25-mile radius were used to separate school districts, and responses from teachers within those concentric circles were then tabulated.

TABLE 33

Characteristics of Experimental School

Percentages of correct responses

TABLE 33 (cont.)

Item	n=21 25-mile	n=20 50-mile	n=9 75-mile	n=7 principals
Number of teachers	0	15	0	29
Number of aides	10	15	0	29
Number of students	24	25	11	0
Years of operation	19	45	33	29
Ratio of Indian to non-Indian pupils	29	25	22	0

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Remarkable, the respondents located between 25 and 50 miles from the experimental school were more knowledgeable on most items, whereas one would assume that closer proximity would tend to increase correct responses.

The survey respondents were also asked to indicate from a list of possible objectives those which in fact were the project's objectives. Results for in-town and out-of-town respondents who completed this section of the questionnaire are presented in Table 34. Fifty-five per cent of the out-of-town respondents did not answer this section of the questionnaire because of apparent lack of information about the program. If their blank responses were included, percentages would be much lower for them.

TABLE 34

Perception of Program Objectives
Percentages of correct responses

Item	n=125 In-town	n=29 Out-of-town
The staff will evolve flexible student management practices	72	86
The staff will explore the feasibility of alternate staffing pattern	50	45
The staff will introduce early childhood education for preschoolers	83	76
The staff will provide individualized instruction through laboratory settings	89	86

TABLE 34 (cont.)

Item	n=125 In-town	n=29 Out-of-town
The staff will establish Learning centers in Language Arts, Math, Social Studies, and Science	90	86
The staff will increase parental understanding of educational objectives and procedures	89	93
Students will improve knowledge, comprehension, and application in language arts by 0.75 grade level equivalent during the school year	26	35
Students will develop proficiency in gross muscle control and dexterity to a level consistant with chronological age	48	41
Students will value the ability to make simple decisions	73	76

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As the data indicates, local and out-of-town teachers exhibit fairly similar response patterns on this section of the survey.

On the foil items included in this section, response patterns were also fairly similar. Forty-one percent of in-town respondents and 35% of out-of-town respondents asserted that one objective was to employ team teaching practices weekly. Sixty-one percent of in-town respondents and 65% of out-of-town respondents indicated that individualized instruction through a language experience approach was a project objective. Likewise, 38% of in-town and 48% of out-of-town respondents maintained that a project objective was that students will increase their self-concept by 50%, as measured by a standard instrument. In each of these cases, the supposed objective was not part of the project's objectives.

Table 35 illustrates the response rates for the 25-mile concentric circles from the experimental school. The number of respondents who actually attempted to answer this section is very small, as the n indicate.

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TABLE 35

Perception of Program Objectives

Percentages of correct responses

Item	25-mile n=11	50-mile n=11	75-mile n=4	principals n=4
The staff will evolve flexible student management practices	91%	82	100	75
The staff will explore the feasibility of alternate staffing patterns	64	27	67	50
The staff will introduce early childhood education for preschoolers	91	64	67	50
The staff will provide individualized instruction through laboratory settings	82	91	100	75
The staff will establish learning centers in Language Arts, Math, Social Studies, and Science	91	82	100	75
The staff will increase parental understanding of educational objectives and procedures	100	82	100	100
Students will improve knowledge, comprehension, and application in language arts by 0.75 grade level equivalent during the school year	36	36	33	25
Students will develop proficiency in gross muscle control and dexterity to a level consistent with chronological age	18	64	67	0
Students will value the ability to make simple decisions	91	64	100	50

From Table 35 one gets the impression that principals are less well-informed about the experimental program than are the teachers. However, they had the lowest no-response rate of the groups to this section (42%) while the teachers located 75 or more miles from the experimental school had the highest no-response rate (73%).

The next section of the survey asked respondents to rate the quality of their sources of information about the program. In another sense, it indicated the major sources of information. The data is reported in Table 36. The best source received a rank of 3, the second best source a rank of 2, and the third best source a rank of one. The rankings were summed for all sources and appear in the right-hand side of the table. Thirteen in-town teachers left this section blank, and thirteen failed to read the directions and voided their responses. Thirty-seven out-of-town teachers left this section blank, and two submitted voided sections.

TABLE 36

Sources of Information:

Ranking of Quality

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Source	n=101 In-town	n=25 Out-of-town	n=126 Total
Personal visit to experimental site	130	47	177
Viewing a TV program about the experimental school	9	8	17
Reading the experimental school Newsletter	94	4	98
Talking with an experimental teacher	122	26	148
Reading the Sault Schools Superintendent's Bulletin	31	5	36
Reading a local newspaper article about the program	12	14	26
Talking to an experimental aide	15	0	15
Listening to a radio program about the experimental project	7	2	9
A graduate course in the local area	20	4	24
Talking to another teacher who actually visited the project	37	17	54
An undergraduate teacher ed course	1	2	3
Talking to an experimental teacher who visited your school to discuss the program	12	5	17
Communicating with the experimental principal	50	8	58

TABLE 36 (cont.)

Source	n=101 In-town	n=25 Out-of-town	n=126 Total
Substitute teaching at the school	6	0	6
Talking with present or former pupils	11	0	11
Talking with parents of experimental pupils	5	0	5
Regional in-service conference	0	6	6
Teaching summer school at project	3	0	3
Slide show by experimental principal	3	0	3
Writing original proposal	3	0	3
Talking to former compensatory director	3	0	3
Grapevine	0	1	1
Non-professional school worker in the past at project site	0	3	3

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It is obvious that the two best sources of information for teachers are a personal visit to the experimental site and a discussion of the program with an experimental school teacher. Other successful information-distribution mechanisms are the experimental school Newsletter, communication with the project principal, and conversing with a teacher who visited the site.

The last section of the survey involved a judgement by the respondent of the experimental school's procedures and processes. Data was tabulated for all respondents who attempted to make such judgments, about the frequency of actions, and means were then calculated. These means were then compared with the means determined from actual experimental classroom observations (see Observations of Program Teachers in this report). The results are reported in Table 37.

TABLE 37

Perceptions of Processes and Procedures: means

Item	In-town n=127	out-of-town n=33	Observed means

TABLE 37 (cont.)

Item	In-town n=127	Out-of-town n=33	Observed means
Each child in the experimental program has the same textbook and materials	2.41	2.36	1.19
Many different activites go on simultaneously in the learning centers	4.50	4.39	4.94
Children do their own work without help from other children	2.84	2.76	1.94
Children, with their teacher's help, choose their own routine in the centers	4.01	4.03	4.75
Children work individually and in small groups at various activities	4.07	4.09	4.88
Children are not supposed to move around the room without asking permission	1.71	1.33	1.00
Experimental teachers spend much time in individualized observing and questioning of students	4.00	3.88	4.75
Experimental teachers prefer that children not talk when they are supposed to be working	2.01	1.88	1.06
Experimental teachers group children for lessons directed at specific student needs	3.88	3.52	3.31
Children spontaneously discuss each other's work	3.38	3.54	4.56
Children work directly with available manipulative materials	3.97	4.03	4.88
Lessons and assignments are given to the class as a whole	1.94	1.73	1.13
Children expect experimental teachers to correct all their work	2.44	2.30	2.44
Children help one another	3.76	3.91	4.06
Experimental children voluntarily group and regroup themselves	3.28	3.18	4.69
Experimental teachers try to keep all children within their sight so that they can make sure children are doing what they are supposed to do	2.47	2.31	1.44
Experimental teachers plan and schedule children's activities throughout the entire school day	2.75	2.70	1.38

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This table indicates that the responses from the in-town and out-of-town teachers are remarkably similar. However, when one compares their responses with actual classroom observations, differences in several categories appear.

Other teachers perceive that experimental students use the same textbook and materials more often than they actually do. Also, the frequency of children helping other children is not perceived to be as high as it actually is. Experimental teachers use individualized observation and questioning of students more frequently than perceived.

Children discuss each other's work more frequently than other teachers imagine. They also group and regroup themselves more frequently than other teachers perceive to be the case. Finally, students do not have their activities scheduled throughout a day as frequently as other teachers believe.

In general, the survey indicates that non-experimental teachers have a reasonable understanding of the experimental school program, especially its objectives and less so its procedures and processes. In-town teachers seem to be much more knowledgeable about the program than do out-of-town teachers; the number of blank responses from outside the local district tends to substantiate this judgment.

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Conclusions and Recommendations

Initially as a summary, this section will focus on the stated objectives of the project. Data has been provided to support the following conclusions:

* The staff has developed alternate staffing patterns.
* The staff has developed flexible student management practices.
* The staff has introduced early childhood education for pre-schoolers.
* The staff has provided individualized instruction through laboratory settings
* The staff has established learning centers in Language Arts, Math, Social Studies, and Science. The math and science centers seem to be very effective, in view of cognitive test gains in those areas. The other centers are ineffective in their present arrangement.
* The staff has increased parental understanding of educational objectives and procedures to the desired level.
* Students did not improve their knowledge, comprehension, and application in language arts by 0.75 grade level equivalent during the school year.
* Students did increase their knowledge, comprehension, and application of basic mathematical concepts by 0.75 grade level equivalent during the school year.
* Students did develop proficiency in gross muscle control and dexterity to a level consistent with chronological age. First grade pupils did not reach the specified level, but neither did the control pupils.
* Students seem to value the ability to make simple decisions. However, additional data to support this view must be gathered.
* Students did increase their career awareness.

Obviously the key area of program modification is the language arts learning center. A reading readiness and reading development program that is meaningful and effective with the experimental school pupils needs to be developed and then implemented. Constant monitoring of its effectiveness by the staff is absolutely necessary.

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Recommendations

The in-service workshop prior to the beginning of the school year should focus its attention on the following items:

* Development of an effective language arts approach for the experimental pupils.

* Development of appropriate small-group methods, especially in language arts.

* Refocusing staff meeting to deal with student learning problems and learning center improvement throughout the year.

* Improvement of the communication patterns among staff members, and between staff and administration representatives.

* Review of an open-concept philosophy, so that all staff members may be aware of the types of structure that are appropriate and the types of activities that are most conducive to effective learning.

* Guidance for the students who do not seem to adjust easily to such a program.

* Means of promoting increased parental understanding of the program.

* Effective behavior modification techniques for application in an "open school".

* Benchmark assessment processes that are effective and efficient.

* Modification of learning centers to make them more attractive to students.

* Frequency of teacher-made assessment instrument usage during the year.

* Increased concern for improvement of pupil self-concept.

In general, the open-concept program has exhibited success in meeting its objectives; its major weakness involves the language arts and reading components of the program, as well as staff communication. Since over 50% of the staff was new last year and many new staff members are likely for 1974-75, staff communication seems imperative to integrate these newcomers and to insure high positive morale.

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APPENDIX

Table 38

PUPIL ATTITUDE QUESTIONNAIRE REPORT

DISTRICT NAME: SAULT STE MARIE
CODE: 17010

SCHOOL NAME:
CODE:

TEACHER NAME:

GRADE: 4

DATE TESTED: 10/73

NUMBER OF PUPILS: 332

MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM
1973-74 (YEAR 5)

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ATTITUDE TOWARD SCHOOL

ITEM NUMBER	1	3	5	7	8	10	12	15	16	19	21	24	27	29	30
TRUE (%)	75*	56*	83*	10	87*	52*	62*	48*	63*	16	57*	64*	18	18	70*
NOT SURE (%)	19	23	14	8	10	22	21	28	21	11	25	17	15	23	19
FALSE (%)	6	21	4	82*	3	26	17	24	15	73*	17	19	67*	59*	11
NO RESPONSE (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

-15- 0061

ATTITUDE TOWARD SELF

ITEM NUMBER	2	4	6	9	11	13	14	17	18	20	22	23	25	26	28
TRUE (%)	23	46	37	29	65	20	35	36	30*	27	54*	15	43*	31	49*
NOT SURE (%)	21	25	20	24	19	13	32	30	35	19	28	13	45	19	38
FALSE (%)	55*	29*	44*	47*	16*	67*	33*	33*	36	54*	18	71*	12	50*	12
NO RESPONSE (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 32

PUPIL ATTITUDE QUESTIONNAIRE REPORT

DISTRICT NAME SAULT STE MARIE
CODE 17010

SCHOOL NAME FINLAYSON
CODE 1234

GRADE 4

DATE TESTED 10/73

NUMBER OF PUPILS 25

MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM
1973-74 (YEAR 5)

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ATTITUDE TOWARD SCHOOL

ITEM NUMBER	1	3	5	7	8	10	12	15	16	19	21	24	27	29	30
TRUE (%)	48*	40*	76*	24	76*	48*	64*	56*	48*	32	56*	72*	32	24	72*
NOT SURE (%)	36	36	20	12	12	28	16	20	24	16	24	12	8	32	
FALSE (%)	16	24	4	64*	12	24	20	24	28	52*	20	16	56*	44*	16
NO RESPONSE (%)	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0

ATTITUDE TOWARD SELF

ITEM NUMBER	2	4	6	9	11	13	14	17	18	20	22	23	25	26	28
TRUE (%)	28	68	44	44	60	36	44	56	12*	40	52*	28	48*	44	36*
NOT SURE (%)	12	20	24	20	20	12	40	16	32	32	28	24	24	24	52
FALSE (%)	60*	12*	32*	36*	20*	52*	16*	28*	56	28*	20	48*	28	32*	12
NO RESPONSE (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 40

Otis-Lennon Mental Ability Test

Post-Test Scores: Experimental, Control

Grade	Experimental			Control		
	n	mean	s.d.	n	mean	s.d.
1	18	102.56	10.57	27	103.85	14.50
2	26	102.00	12.92	23	106.73	14.25
3	24	99.58	10.82	32	110.50	14.65
4	23	94.87	13.49	33	107.06	13.28
5	22	93.00	15.64	36	99.89	17.00
6	24	95.08	18.03	28	103.18	14.11

OPEN-CONCEPT SCHOOL FOR INDIAN EDUCATION
Finlayson School Project
Sault Ste. Marie, Michigan

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No._____ DIFFUSION STUDY SURVEY

A. We wish to gain some background information about you. Please fill in the following three questions.

1. Male _____ Female _____

2. Grade level of teaching _____

3. No. of years of teaching _____

B. The following questions involve some specific knowledge about the characteristics of the Finlayson School students and staff. Responses should be put in the space before the question.

_____ 4. The number of teachers at Finlayson School is

(a) 4-6 (b) 7-9 (c) 10 or more (d) don't know

_____ 5. The number of aides (paraprofessionals)at Finlayson School is

(a) 1-4 (b) 5-9 (c) 10 or more (d) don't know

_____ 6. The number of students at Finlayson School is

(a) 100-150 (b) 150-200 (c) 200 or more (d) don't know

_____ 7. The Open-Concept Program for Indian Education at Finlayson School has been in operation

(a) 1 year (b) 2 years (c) 3 years (d) 4 years or more

(e) don't know

_____ 8. The ratio of Indian children to non-Indian students at Finlayson School is approximately

(a) 30% Indian/70% non-Indian

(b) 50/50

(c) 70/30

(d) don't know

C. In this section we wish to identify your knowledge of the objectives of the Finlayson Project. Check each objective that you know is part of the Finlayson goals.

9. Of the following, the Finlayson Project's goals are:

_____ a. the staff will evolve flexible student management practices

_____ b. the staff will explore the feasibility of alternate staffing patterns

_____ c. the staff will employ team teaching practices weekly

_____ d. the staff will introduce early childhood education for preschoolers

_____ e. the staff will provide individualized instruction through laboratory settings

_____ f. the staff will provide individualized instruction through laboratory settings.

_____ g. the staff will establish learning centers in Language Arts, Math, Social Studies, and Science

_____ h. the staff will increase parental understanding of educational objectives and procedures

_____ i. students will improve knowledge, comprehension, and application in language arts by .75 grade level equivalent during the school year

_____ j. students will increase their knowledge, comprehension, and application of basic mathematical concepts by 1.0 grade level equivalent during the school year.

_____ k. students will develop proficiency in gross muscle control and dexterity to a level consistent with chronological age

_____ l. students will value the ability to make simple decisions

_____ m. students will increase their self-concept by 50%, as measured by a standard instrument

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D. In this section, we wish to identify how you found out about the Open-Concept School for Indian Education (Finlayson's) programs, objectives, and processes. Check (X) your sources of information about the program in column I.

Then rank order the three (3) best sources of information in the next column, as follows: 1 - the best source; 2 - the next best source; and 3 - the next best.

10. I found out about the Finlayson program, objectives, and processes from the following sources.

I	II	
_____	_____	(a) a personal visit to Finlayson School
_____	_____	(b) viewing a TV program about the Finlayson School
_____	_____	(c) reading the Finlayson School Newsletter
_____	_____	(d) communicating with a Finlayson teacher by mail
_____	_____	(e) talking with a Finlayson teacher
_____	_____	(f) reading the Sault Schools' Superintendent's Bulletin
_____	_____	(g) reading a local newspaper article about the program
_____	_____	(h) talking to a Finlayson aide (paraprofessional)
_____	_____	(i) listening to a radio program about the Finlayson program
_____	_____	(j) a graduate course offered in the local area
_____	_____	(k) talking to another teacher who personally visited the Finlayson School
_____	_____	(l) an undergraduate teacher education course
_____	_____	(m) talking to a Finlayson teacher who visited your school to discuss the program
_____	_____	(n) communicating with the Finlayson School Principal
_____	_____	(o) Other (list)_____

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E. In this section we wish to measure your perception of the Finlayson program. For each statement, make your choice on the basis of what you know about the program's procedures and processes.

CIRCLE the most appropriate number for each item according to the following scale:

		Never	Rarely	Sometimes	Frequently	Always
11.	Each child in the Finlayson program has the same textbook and materials.	1	2	3	4	5
12.	Many different activites go on simultaneoulsly in the Finlayson learning centers.	1	2	3	4	5
13.	Children do their own work without help from other children	1	2	3	4	5
14.	Children, with their teacher's help, choose their own routine in the centers.	1	2	3	4	5
15.	Children work individually and in small groups at various activities.	1	2	3	4	5
16.	Children are not supposed to move about the room without asking permission.	1	2	3	4	5
17.	Finlayson teachers spend much time in individualized observing and questioning of students.	1	2	3	4	5
18.	Finlayson teachers prefer that children not talk when they are supposed to be working.	1	2	3	4	5
19.	Finlayson teachers group children for lessons directed at specific student needs.	1	2	3	4	5
20.	Children spontaneously discuss each other's work.	1	2	3	4	5
21.	Children work directly with available manipulative materials	1	2	3	4	5
22.	Lessons and assignments are given to the class as a whole.	1	2	3	4	5
23.	Children expect Finlayson teachers to correct all their work.	1	2	3	4	5
24.	Children help one another	1	2	3	4	5
25.	Finlayson children voluntarily group and regroup themselves	1	2	3	4	5
26.	Finlayson teachers try to keep all children within their sight so that they can make sure children are doing what they are supposed to do.	1	2	3	4	5

B. (cont.)

	Never	Rarely	Sometimes	Frequently	Always
		1	2	3	4	5
27. Finlayson teachers plan and schedule children's activities throughout the entire school day.					

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